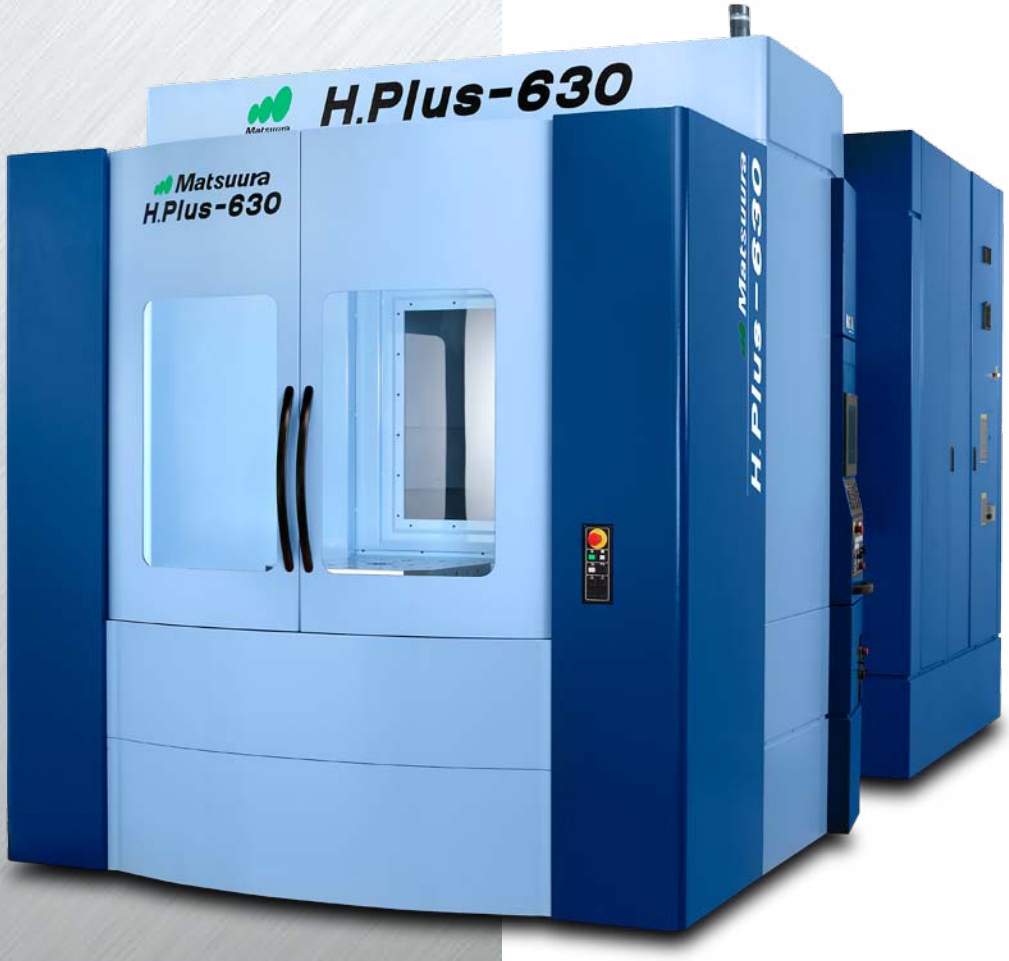
Matsuura

Horizontal Machining Center

H.Plus-630



MAXIA

Innovation by Matsuura

Matsuura H.Plus-630

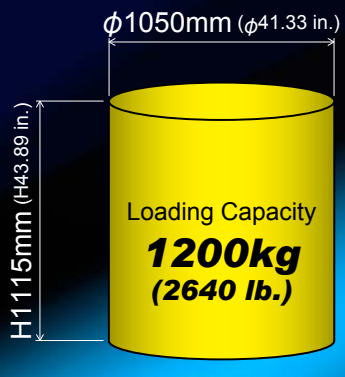
Updated and advanced to meet the challenges of today's manufacturers; the best in class just got better

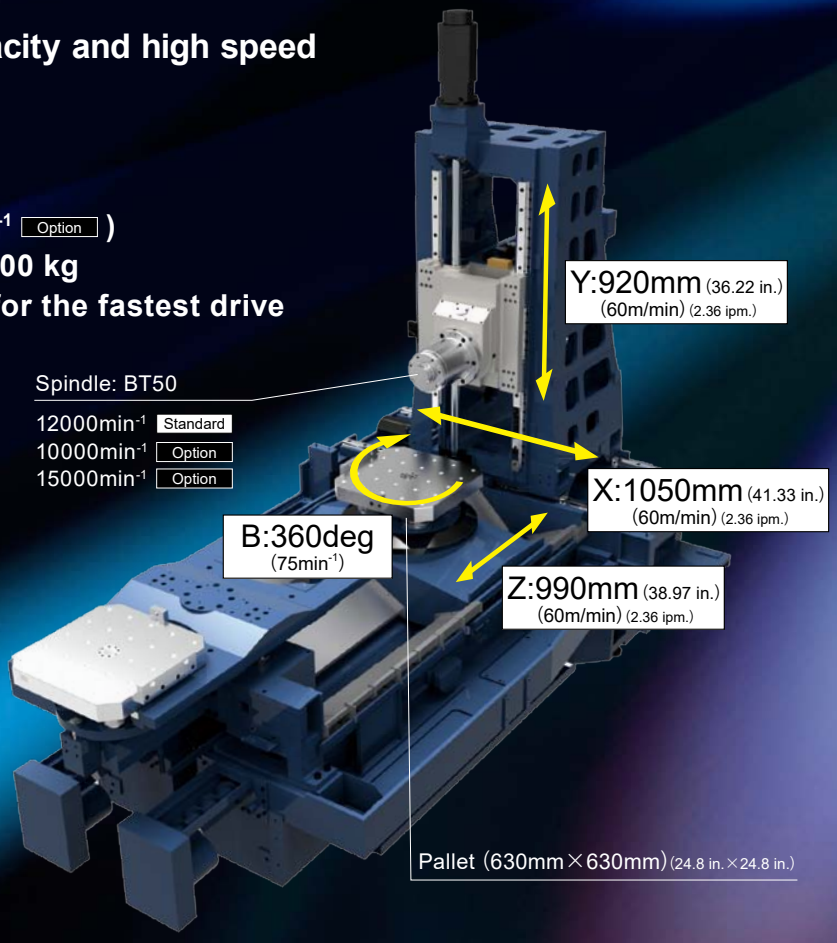
- Equipped with a new operation panel with a 15-inch touchscreen for improved operability and visibility.
- New Matrix tool changers-large capacity and high speed options.

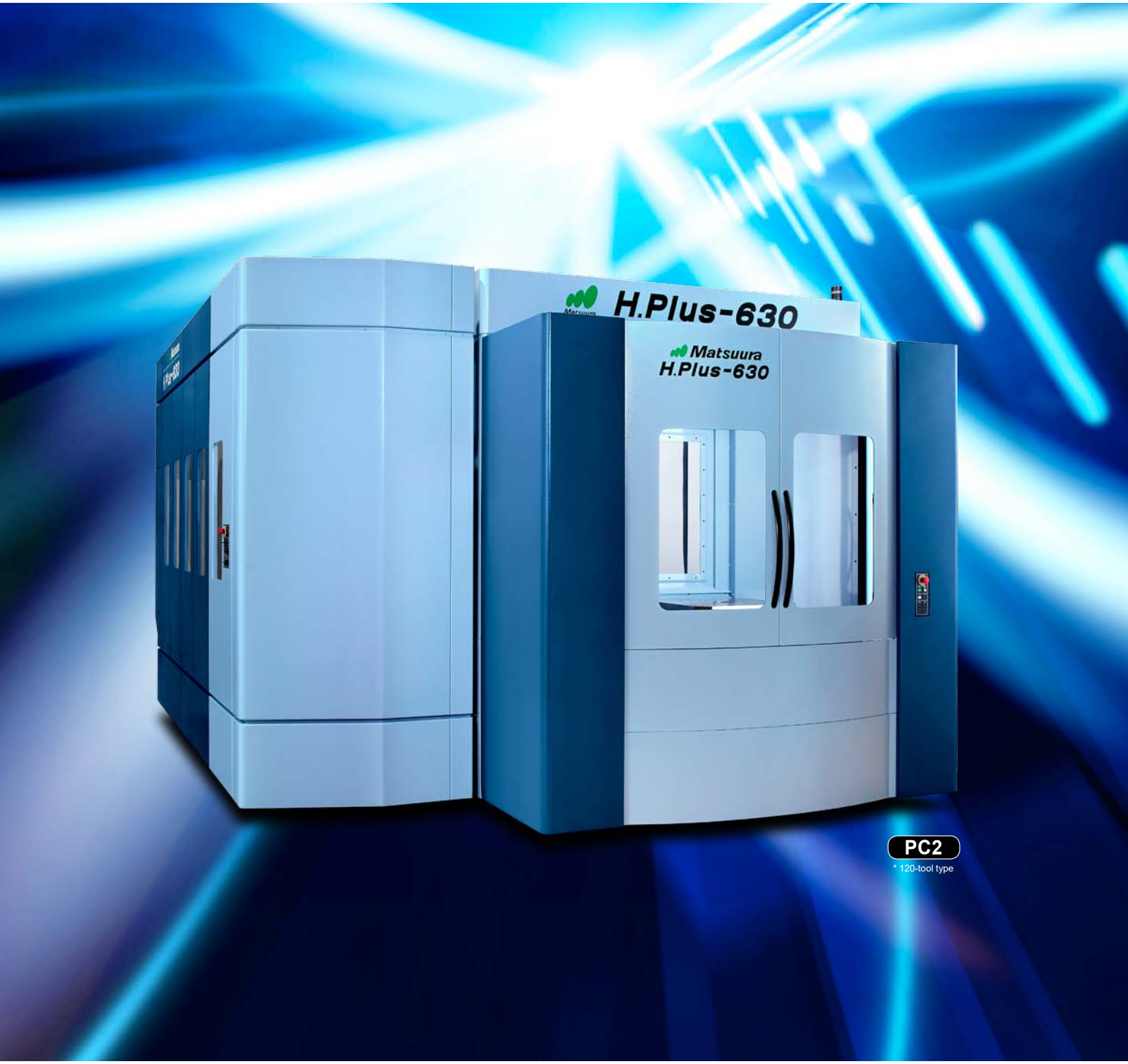
Features

- 700 N·m high-torque spindle (10000 min^{-1} Option)
- Workpiece size: ϕ1050 x H1115 mm, 1200 kg
- The B axis uses a DD motor (75 min^{-1}) for the fastest drive in the class.
- 60 m/min on X, Y and Z axes, the fastest in the class.

Max. Workpiece Size







PC2

* 120-tool type

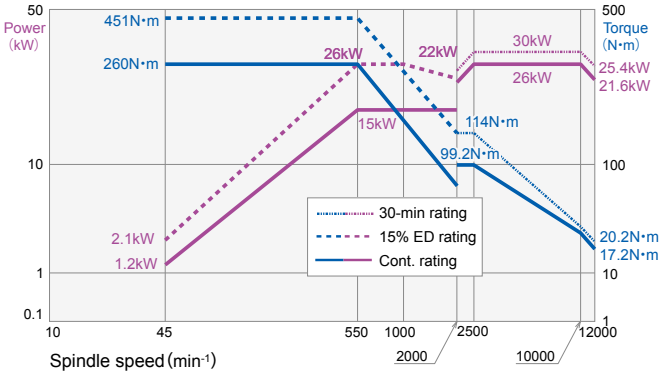
MAXIA

Innovation by Matsuura

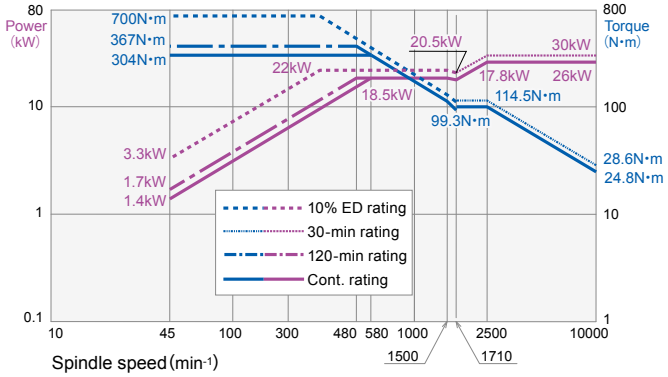
MAXIA Spindles; Renowned for maximum performance and durability in even the most arduous machining environments

Choose from 3 handcrafted BT50 spindles types-designed, manufactured and tested in house at Matsuura.

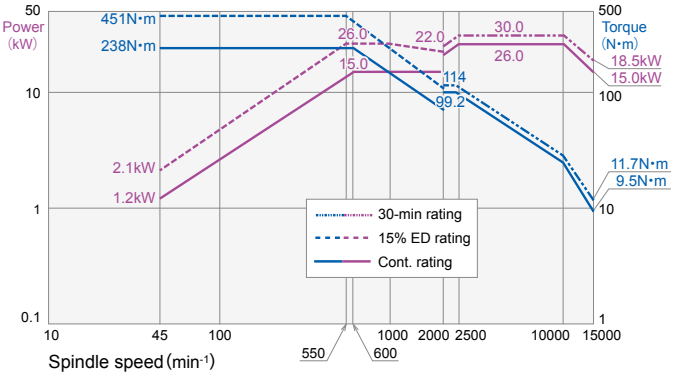
Standard BT50 12000min^{-1}



Option BT50 10000min^{-1}
High-torque type 700N·m



Option BT50 15000min^{-1}
High-speed type



All manufacturing processes are handled in-house, from spindle design to machining, assembly and inspection.

■ Cutting test results (BT50 12000min^{-1}) Standard

(in.)

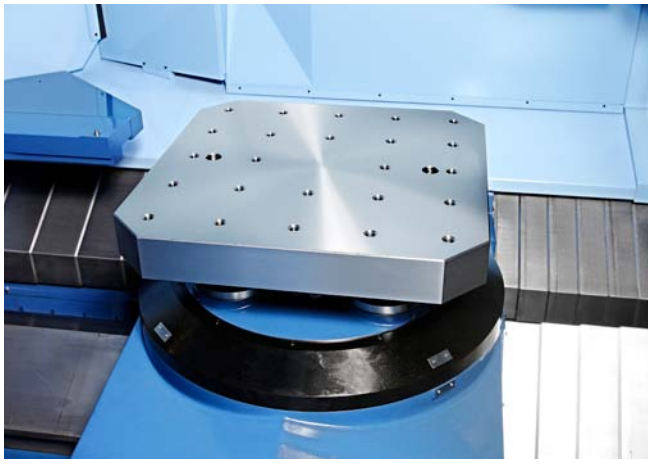
	Workpiece material	Tool details	Cutting width / Cutting depth	Spindle speed	Cutting feed rate	Cutting capacity		Workpiece material	Tool details	Spindle speed	Cutting feed rate	Cutting capacity
Facemill	Aluminum	Ø100mm (3.93) 4-flute	W=80mm (3.14) D=5mm (0.19)	5500 min^{-1}	9000 mm/min (354.33)	3600 cc/min	Drill	Aluminum	Ø52mm (2.04)	1500 min^{-1}	400 mm/min (15.74)	849 cc/min
	Steel	Ø125mm(4.92) 9-flute	W=90mm(3.54) D=7mm(0.27)	550 min^{-1}	900mm/min (35.43)	567 cc/min		Steel	Ø52mm (2.04)	1500 min^{-1}	220 mm/min (8.66)	467 cc/min
		Ø80mm(3.14) 6-flute	W=70mm(2.75) D=4mm(0.15)	900 min^{-1}	2600mm/min (102.36)	728 cc/min						
Endmill	Aluminum	Ø25mm (0.98) 2-flute	W=20mm (0.78) D=15mm (0.59)	12000 min^{-1}	7000 mm/min (275.59)	2100 cc/min	Tap	Aluminum	M42 × P4.5	120 min^{-1}	540 mm/min (21.25)	
	Steel	Ø25mm (0.98) 4-flute	W=3mm (0.11) D=40mm (1.57)	5500 min^{-1}	6000 mm/min (236.22)	720 cc/min		Steel	M42 × P4.5	80 min^{-1}	360 mm/min (14.17)	

* The data above are examples of actual results. Under different conditions, it may not be possible to achieve the data stated in this catalog.

Standard Feature; Direct Drive Rotary Indexing Table

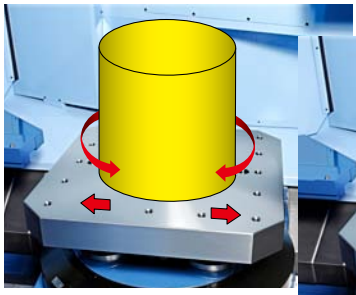
Rotary Indexing Table Utilizing a DD Motor

The Direct Drive motor (75 min^{-1}) delivers high speed operation with unerring acceleration and precision. The non-contact design is low noise and maintenance free.

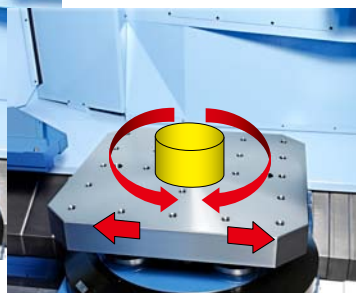


ADC (Automatic Acc. & Dec. Control) Automatic Acceleration and Deceleration Control Function

A function that automatically tunes the B-axis / Z-axis acceleration and deceleration according to the workpiece inertia is adopted (implemented during ATC operation). It reduces indexing time by up to 35%.



Inertia: large
(B/Z axes normal acceleration / deceleration)



Inertia: small
(B/Z axes optimal acceleration / deceleration)

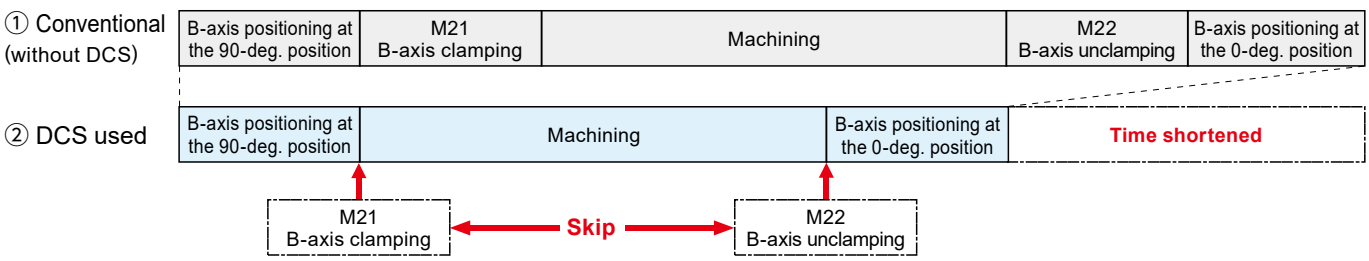
DCS (Dynamic Clamp System)

The key to shorter indexing times is the table clamping/unclamping time.
Matsuura's DCS function is the world's first revolutionary clamping system. The load level applied to the DD motor is monitored, and the table is clamped only when the load level has exceeded the setting value. The table remains unclamped even during machining as long as the load level is within the preset load range.

■ Within the preset load range ⇒ Machining with the table unclamped
(M21 and M22 skipped for light machining)

■ Load range exceeding the setting value ⇒ Machining with the table clamped
(M21 and M22 not skipped for heavy machining)

■ Light machining

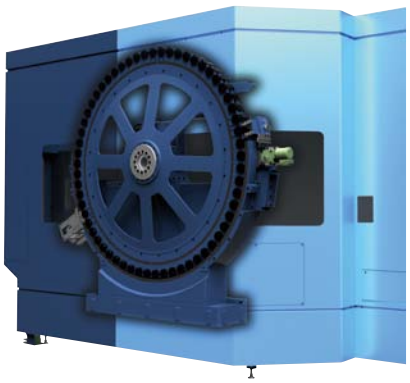


Expandable to Handle Prolonged Unmanned Operation
A wealth of multi-tool/multi-pallet options are available.

60-tool Drum Magazine

Standard

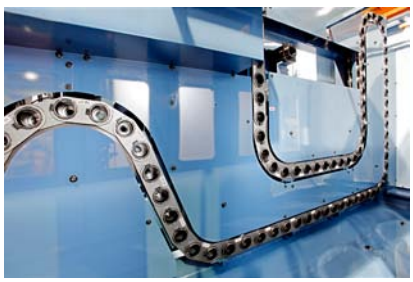
A servo-driven 60 tool capacity drum magazine is standard on the ***H.Plus-630***. Compared to other ATC configurations of equal capacity on the market, this Matsuura design delivers a 50% reduction in operating noise & offers high speed & highly accurate indexing.



120-tool Chain Magazine

Option

Chain type ATC; reduces tool indexing time by 20%, enhancing high speed production runs that require fast tool changes during short machining operations.

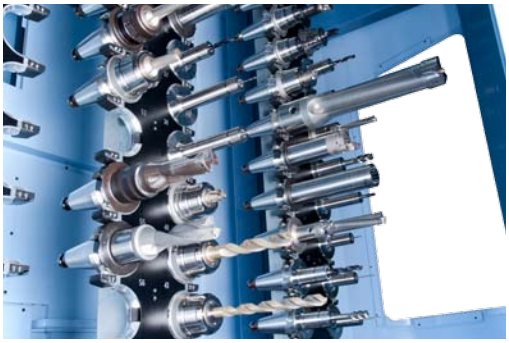


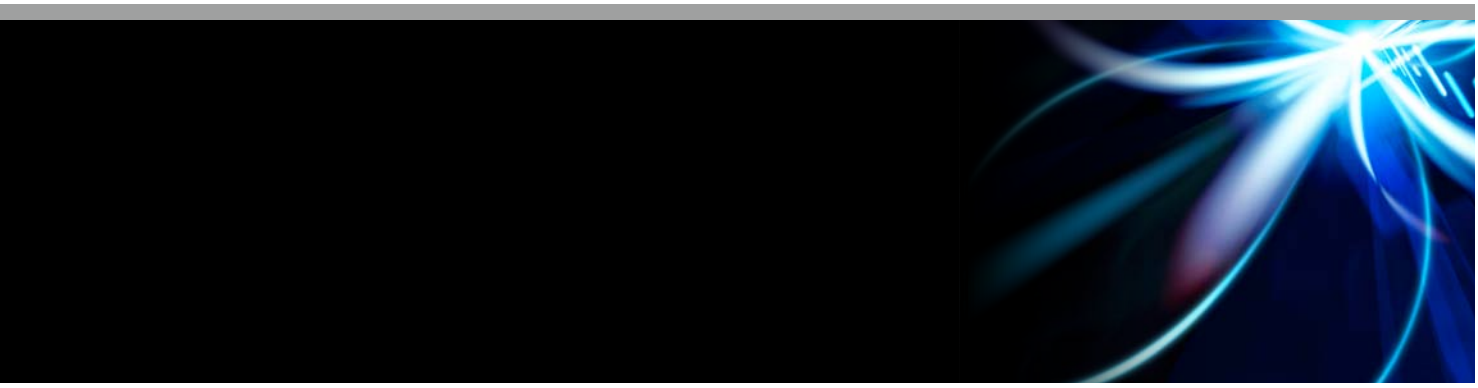
Matrix Magazines

Option

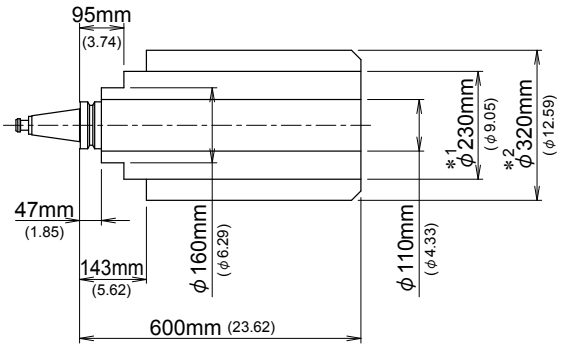
Faster tool transport with the servo-driven tool transfer arm. The “209-tool high-speed type”, and “245-tool large-capacity type” are available for selection according to requirements. This strengthens support for multiproduct variable-quantity production, prolonged unmanned operation, and high-speed machining.

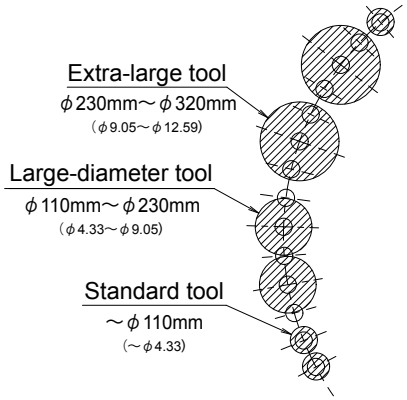
Matrix Magazine	
High-speed type	Capacity up to 209 tools (114 / 144 / 174 / 209) ・Tool transfer time shortened by optimizing the tool rack arrangement
Large-capacity type	Capacity up to 245 tools (120 / 150 / 180 / 210 / 245)





Maximum tool size (in.)





Tool shank	JIS B 6339 Tool Shank 50T
Pullstud	JIS B 6339 Pullstud 50P
Max. tool diameter	ø110mm (ø4.33) ø230mm (ø9.05) (*1. No adjacent tool/with specified storage space) ø320mm (ø12.59) (*2. No adjacent tool/with specified storage space) * Tools with ø320 mm (12.59) in diameter can be mounted side by side, provided that two empty pots are required between them.
Max. tool length	600mm (23.62)
Max. tool math	20kg (44 lb.) (The tool moment load must not exceed 2 kgm.)

PC6 Floor Pallet System Option

Pressure Supply for Fixtures-Feature* Option

A through pallet pressure supply feature as an option is available on the ***H.Plus-630***.

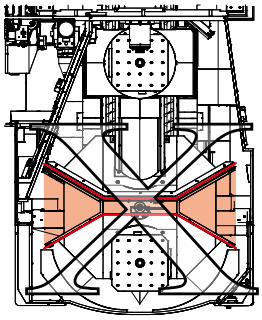
* Please note; if the through pallet pressure supply feature is selected as an option the supply source, solenoid valves, pressure switches, gap sensors, joints and hoses are not supplied as standard.

	Number of ports	Pressure (MPa)
1. Work station side	2 ports	Max.19.6
2. Machine side	2 ports	Max.19.6

Matsuura's unique X & W structure - superb chip and swarf management.

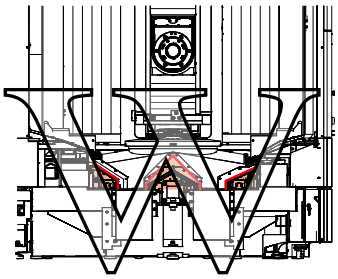
X-type APC Door

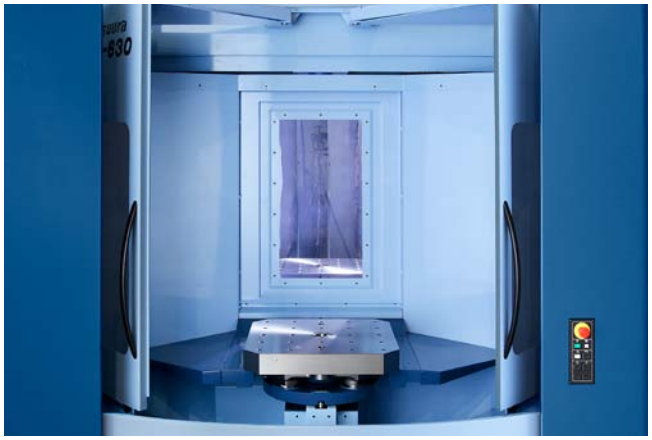
Separating the APC set up station from the machining enclosure is Matsuura's X Type door configuration. This unique design prevents chip build up and accumulation and is designed to handle the high metal removal rates generated by the ***H.Plus-630***.



W-type Slide Cover

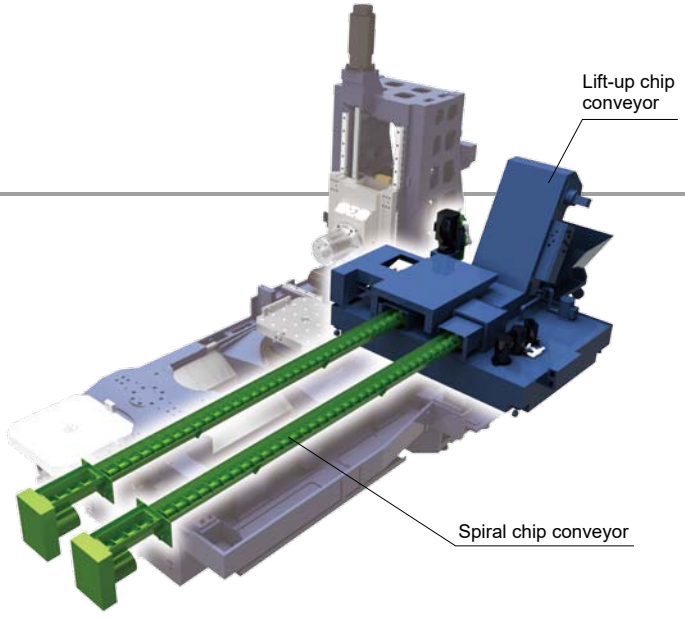
The W Type configuration with robust telescopic facilitates the fast and efficient evacuation of chips and swarf from the machining enclosure - even at the highest volume of metal removal.





Spiral Chip Conveyor — Standard
Lift-up Chip Conveyor — Option

Spiral chip conveyors are provided as standard in the gutters to transport chips smoothly to a tank at the rear of the machine. Chip disposal can be automated by installing the optional lift-up chip conveyor.



MIMS with New Features for Safety and Security of Machining

MIMS *Matsuura Intelligent Meister System*

Digitized Meister knowledge, skills and ingenuity
Matsuura's unique interface to maximize rapid operation and usability

Environment

Eco Meister

Power saving

- Power cut-off function
- Energy-saving devices installed

Accuracy

Thermal Meister

Stable accuracy

- Spindle thermal displacement compensation
- X/Y/Z thermal displacement compensation
- Environmental thermal displacement compensation

Simple

Operability Meister

Fuss-free simple operation

- Tool setup support
- Workpiece setup support

Secure

Reliability Meister

Machine downtime reduction

- Preventive maintenance support
- Failure cause analysis
- Electronic manuals
- E-mail function

15-inch touch panel screen adopted

The machine is equipped with a new operating system that features a 15-inch touch panel. Icons required for operation, setup and maintenance are displayed on the screen. Screen display can be switched by single-tapping, and can be customized as needed.

Operation status monitoring — Standard

Machine availability and performance can be monitored to improve process planning.

- Performance is monitored to check OEE.
- Data can be output to process data acquisition (PDA) systems.

* Overall equipment efficiency (OEE) = availability x performance x quality
* The storage period is one month. Upgrade to one year of data storage is optional.

Overall operation ratio display

Operational state display

Matsuura remote monitoring system — Option

- Monitor the operating status of multiple machines, even while off site.
- Check machine operation history (machines can be displayed collectively or individually).
- Edit the pallet schedule, even when away from the machine.

Individual machine operating status

Multiple machines operating status

Standard Machine Specifications

■ Movement and Range		
X-Axis Travel	mm (in.)	1050 (41.33)
Y-Axis Travel	mm (in.)	920 (36.22)
Z-Axis Travel	mm (in.)	990 (38.97)
B-Axis Rotation Angle	deg	360
■ Pallet		
Working Surface	mm (in.)	630×630 (24.8×24.8)
Loading Capacity	kg (lb.)	1200 (2640)
Max. Workpiece Size	mm (in.)	ϕ1050×H1115 (ϕ41.33×H43.89)
■ Spindle		
Spindle Speed	min^{-1}	45 - 12000 (Oil-Air Lubrication System)
Spindle Taper	—	7/24 taper # 50 (BT Double Face Contact)
Spindle Bearing Inner Diameter	mm (in.)	ϕ100 (ϕ3.93)
Spindle Motor Output	kW	AC 15 / 26 (Low Speed: Continuous/15%) AC 26 / 30 (High Speed: Continuous/60%)
Max. Spindle Torque	N·m	451 / 550min^{-1}
■ Feed Rate		
Rapid Traverse Rate X/Y/Z	mm/min (ipm)	60000 / 60000 / 60000 (2362.2 / 2362.2 / 2362.2)
B	min^{-1}	75
Feed Rate X/Y/Z	mm/min (ipm)	1 - 60000 (0.03-2362.2)
B	min^{-1}	0 - 75
■ Automatic Tool Changer		
Type of Tool Shank	—	JIS B 6339 tool shank 50T
Pullstud	—	JIS B 6339 pullstud 50P
Tool Storage Capacity	pcs.	60
Max. Tool Diameter	mm (in.)	ϕ110 (ϕ4.33) (Adjacent tool exists) ϕ320 (ϕ12.59) (No adjacent tool)
Max. Tool Length	mm (in.)	600 (23.62)
Max. Tool Mass	kg (lb.)	20 (44) (Tool moment load to be less than 2 kgm)
Methods of Tool Selection	—	Fixed address (Rack type ATC magazine: fixed address)
Tool Changing Time: Tool to Tool	sec	2.2 (When tool mass is 10 kg or less) 3.1 (When tool mass is over 10 kg)

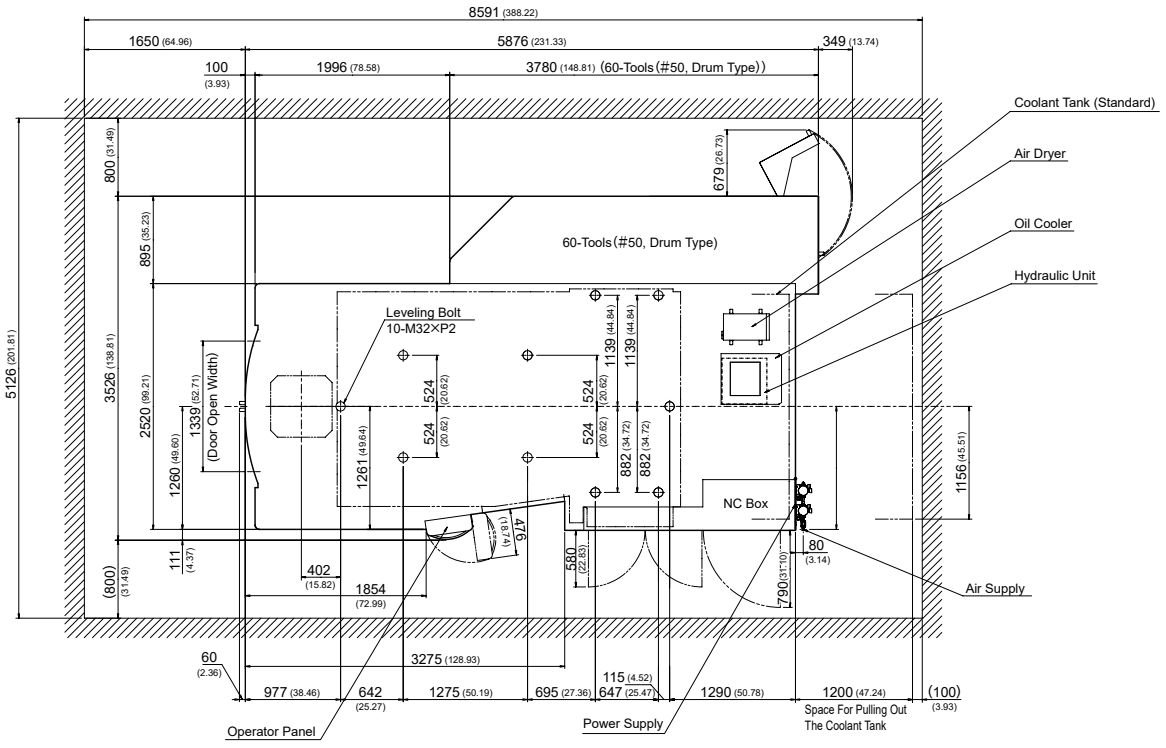
■ Automatic Pallet Changer		
Number of Pallets	pallets	2
■ Power Sources		
Electrical Power Supply	kVA	97 (Depends on the options provided)
Required Air Volume	NL/min	600
■ Tank Capacity		
Coolant Tank Capacity	L	600
■ Machine Size		
Machine Weight	kg (lb.)	21000 (46297)
■ NC System		
Control System	—	Matsuura G-Tech 31i

■ Standard Accessories

01. ***AD-TAP*** Function
02. ***IPC*** Function
03. Auto Grease Supply Unit for Feed Axes
04. Air Dryer
05. Spiral Chip Conveyor x 2
06. M-Code Counter (9 Kinds)
07. Service Tools and Tool Box
08. Machine Color Paint
09. Leveling Bolts, Leveling Plates
10. ***MIMS*** (Matsuura Intelligent Meister System)
11. Spindle Thermal Displacement Compensation System
12. Integrating Spindle Run Hour Meter
13. Integrating Auto Run Hour Meter
14. Operating Status Monitoring (Operating Data Storage Period: 1 Month)

* 2 years spindle warranty

Floor Plan Unit: mm (in.)



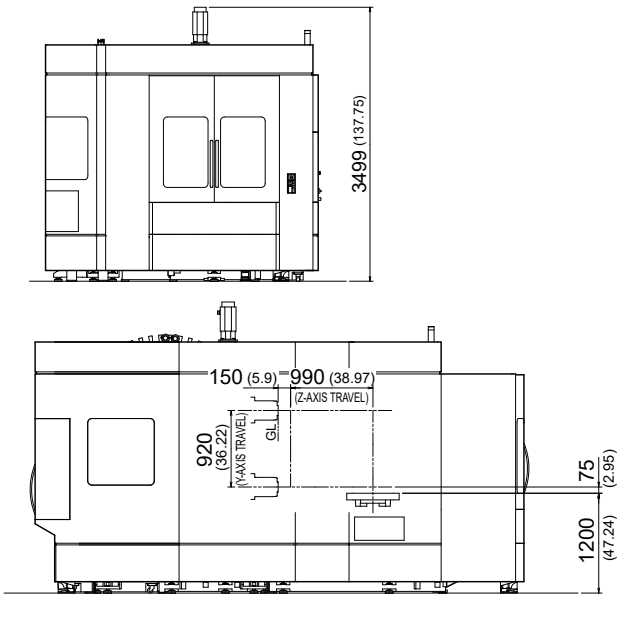
List of Fittings

○: Standard ▲: Option

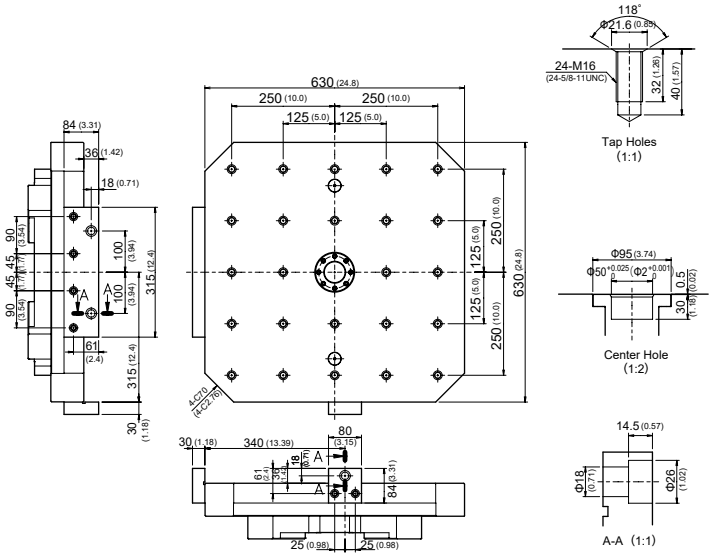
■ Spindle				
12000 min^{-1} (BT50 Oil-Air Lubrication System)				○
15000 min^{-1} (BT50 Oil-Air Lubrication System)				▲
10000 min^{-1} (BT50 Oil-Air Lubrication System)				
	Spindle motor output	kW	Low : 18.5 / 22、High : 26 / 30	▲
	Spindle max. torque	N・m	700 (300min^{-1})	
■ ATC				
60 tools (Drum magazine)				○
120 tools (Chain magazine)				▲
120 / 150 / 180 / 210 / 245 tools (Matrix magazine: 245-tool base)				▲
114 / 144 / 174 / 209 tools (Matrix magazine: 209-tool base)				▲
Max. tool mass: 30 kg				▲
■ APC				
PC2				○
PC6 (Floor Pallet System)				▲
■ Pallet				
□630	Working Surface	mm (in.)	630×630 (24.8×24.8)	○
	Loading Capacity	kg (lb.)	1200 (2640)	
	Max. Workpiece Size	mm (in.)	ϕ1050×H1115 (ϕ41.33×H43.89)	
■ High-precision Control				
Scale Feedback X/Y/Z				▲
■ Coolant				
Coolant Unit				○
Vacuum-Type Coolant Through A 7MPa				▲
Vacuum-Type Coolant Through A 14MPa				▲
Vacuum-Type Coolant Through B 7MPa				▲
Vacuum-Type Coolant Through B 14MPa				▲
Vacuum-Type Coolant Through C 2MPa				▲
Vacuum-Type Coolant Through C 7MPa				▲
Coolant Flow Checker				▲
Coolant Shower System				▲
Mist Separator (without fire damper)				▲
Mist Separator (with fire damper)				▲
Coolant Temperature Controller with Tank 100L				▲
Coolant Temperature Controller with Tank 200L				▲

■ In-Process Measurement / Tool Breakage Detection	
I.P.Measure/Auto.Centering (Blum, Matsuura Macro)	▲
I.P.Measure/Auto.Centering (Blum, Blum Macro)	▲
I.P.Measure/Auto.Centering (Blum Macro Only)	▲
I.P.Measure/Auto.Centering (Renishaw, Matsuura Macro)	▲
I.P.Measure/Auto.Centering (Renishaw, Renishaw Macro)	▲
I.P.Measure/Auto.Centering (Renishaw Macro Only)	▲
Broken Tool Detection (Metrol)	▲
Laser Broken Tool Detection (Blum)	▲
Laser Broken Tool Detection (Renishaw)	▲
Broken Tool Detection in ATC MG (60T drum)	▲
Broken Tool Detection in ATC MG (Matrix MG)	▲
■ Chip Removal	
Two Spiral Chip Conveyors	○
Lift-Up Conveyor (scraper and drum)	▲
Lift-Up Conveyor (hinge + scraper and drum)	▲
Chip Bucket	▲
Air Blow for Chip Removal	▲
Workpiece Cleaning Gun (Machine side)	▲
Workpiece Cleaning Gun (APC side)	▲
2 MPa External Nozzle (with spindle through)	▲
7 MPa External Nozzle (with spindle through)	▲
■ Operation / Maintenance Support	
Work Light	○
Add Optional Block Skip Switch 2-9	▲
8 Sets of Extra M Function	▲
Spindle Load Monitoring Function	▲
Weekly Timer	▲
3-Color Signal Light (Red, Yellow, Green from Top)	▲
Rotary Wiper (Air supply system)	▲
Rotary Wiper (Electrical system)	▲
AC100V Outlet 3A	▲
External Manual Pulse Generator	▲
Tool Pre-check Function	▲
Pressure Supply System for Fixtures	▲
Robot Interface	▲
Operating status monitoring (Storage capacity expansion: 1 year)	▲
Matsuura Remote Monitoring System	▲
Machine Information Output: MTConnect	▲
■ Safety Device	
Matsuura Safety Specifications	○
Automatic Fire Extinguisher	▲
■ Optional Package	
High-speed, High-precision Package	▲

External View Unit: mm (in.)



Pallet Top View Unit: mm (in.)



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